

FOR NATIONAL PHASE SUBMISSION

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CLAIM AMENDMENTS

IN THE CLAIMS

This listing of the claims will replace all prior versions, and listing, of claims in the application or previous response to office action:

1. (Currently Amended) A method for producing electrical contacting of a piezoelectric actuator-~~(1)~~ and for polarizing the piezoelectric actuator-~~(1)~~, the method comprising:

providing the an actuator-~~(1)~~ having at least one piezoceramic layer-~~(3)~~ which has two spaced electric contacts ~~(4, 8, 9)~~,

soldering electric conductors-~~(5, 10, 11)~~ ~~being soldered~~ to the electric contacts-~~(4, 8, 9)~~,

heating the piezoelectric actuator-~~(1)~~ ~~being heated~~ up to a soldering temperature during the soldering process, ~~characterized in that wherein~~ during the soldering process a polarizing voltage is applied to the conductors-~~(5, 10, 11)~~ and the piezoceramic layer-~~(3)~~ is polarized.

2. (Currently Amended) ~~The A~~ method ~~as claimed~~ in accordance to claim 1, ~~characterized in that wherein~~ a solder material-~~(13)~~ is used whose soldering temperature is above the Curie temperature of the piezoceramic layer-~~(3)~~.

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3. (Currently Amended) A method according to claim 1,
wherein ~~The method as claimed in claim 1 or 2, characterized~~
~~in that~~ the polarizing voltage is also applied during a
cooling process, and ~~that~~ the voltage is limited to a maximum
value during cooling of the actuator.

4. (Currently Amended) A method according to claim 1,
wherein ~~The method as claimed in one of the claims 1 to 3,~~
~~characterized in that~~ the polarizing voltage is applied during
a heating process before a maximum temperature is reached, and
~~that~~ the current is limited to a maximum value during heating
of the actuator-(1).

5. (Currently Amended) A method according to claim 1,
wherein ~~The method as claimed in one of the claims 1 to 4,~~
~~characterized in that~~ the voltage present during polarization
is recorded and evaluated in order to assess the polarization
and/or the actuator-(1).

6. (Currently Amended) A method according to claim 1,
wherein ~~The method as claimed in one of the claims 1 to 5,~~
~~characterized in that~~ the current flowing during polarization
is recorded and evaluated in order to assess the polarization
and/or the actuator-(1).

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7. (Currently Amended) A method according to claim 1,
wherein ~~The method as claimed in one of the claims 1 to 6,~~
~~characterized in that~~ the conductors ~~(10, 11)~~ are pressed onto
soldering surfaces of the contacts ~~(8, 9)~~ via heating blocks
~~(15)~~, and ~~that wherein~~ the heating blocks ~~(15)~~ at least
partially heat up the actuator ~~(1)~~.

8. (Currently Amended) A method according to claim 1,
wherein ~~The method as claimed in one of the claims 1 to 7,~~
~~characterized in that~~ a plurality of actuators ~~(1)~~ are
soldered to conductors ~~(10, 11)~~ and polarized simultaneously.

9. (Currently Amended) A method according to claim 8,
wherein ~~The method as claimed in claim 8, characterized in~~
~~that~~ the conductors ~~(10, 11)~~ of a contact ~~(8, 9)~~ are used
monolithically for a plurality of actuators ~~(1)~~ during
soldering and polarization, and ~~that wherein~~ after soldering
and polarization the conductors ~~(10, 11)~~ are divided into
individual conductor pieces for each actuator ~~(1)~~.

10. (Currently Amended) A method according to claim 9,
wherein ~~The method as claimed in claim 9, characterized in that~~
the conductors ~~(10, 11)~~ are connected to contact pins ~~(6, 7)~~
prior to soldering and polarization.

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11. (Currently Amended) A method according to claim 1,
wherein The method as claimed in one of the claims 1 to 10,
characterized in that the actuator (1) is heated up to above
the Curie temperature of the piezoceramic layer (3) during the
soldering process.

12. (NEW) A method for producing electrical contacting
of a piezoelectric actuator and for polarizing the
piezoelectric actuator, the method comprising:

providing an actuator comprising a piezoceramic layer
with two spaced electric contacts,

heating the piezoelectric actuator up to a soldering
temperature during the soldering process for soldering
electric conductors to the electric contacts, wherein during
the heating process a polarizing voltage is applied to the
conductors.

13. (NEW) A method according to claim 12, wherein a
solder material is used whose soldering temperature is above
the Curie temperature of the piezoceramic layer.

14. (NEW) A method according to claim 12, wherein the
polarizing voltage is also applied during a cooling process,
and the voltage is limited to a maximum value during cooling
of the actuator.

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15. (NEW) A method according to claim 12, wherein the polarizing voltage is applied during a heating process before a maximum temperature is reached, and the current is limited to a maximum value during heating of the actuator.

16. (NEW) A method according to claim 12, wherein the voltage present during polarization is recorded and evaluated in order to assess the polarization and/or the actuator.

17. (NEW) A method according to claim 12, wherein the current flowing during polarization is recorded and evaluated in order to assess the polarization and/or the actuator.

18. (NEW) A method according to claim 12, wherein the conductors are pressed onto soldering surfaces of the contacts via heating blocks, and the heating blocks at least partially heat up the actuator.

19. (NEW) A method according to claim 12, wherein a plurality of actuators are soldered to conductors and polarized simultaneously.

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PATENT APPLICATION

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20. (NEW) A method for producing electrical contacting of a piezoelectric actuator and for polarizing the piezoelectric actuator, the method comprising:

providing an actuator comprising a piezoceramic layer with two spaced electric contacts,

heating the piezoelectric actuator up to a soldering temperature during the soldering process for soldering electric conductors to the electric contacts, wherein during the heating process a polarizing voltage is applied to the conductors, and

applying the polarizing voltage also during a cooling process, and limiting the voltage to a maximum value during cooling of the actuator.